

A REVIEW OF THE GENUS *STRIDULIVELIA* HUNGERFORD AND TWO
NEW SPECIES (HETEROPTERA: VELIIDAE) FROM
SOUTH AMERICA

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Abstract.—Two new species are described, *Stridulivelia ayacucho* from the Territorio Federal Amazonas of Venezuela and *S. anta* from Amazonas, Brazil. *Stridulivelia nama* (Drake 1957) is placed as a junior synonym of *S. tersa* (Drake & Harris 1941) (new synonymy). Habitat and distributional data and maps are given for the South American species along with a key to species of the nominate subgenus *Stridulivelia*.

Key Words: Heteroptera, Veliidae, *Stridulivelia*, new species, water strider, synonymy, key to subgenera, key to species, South America

Hungerford (1929) established the subgenus *Stridulivelia* for those members of the genus *Velia* Latreille 1804 that share a general facies that he characterized as follows: "The sides of the thorax are devoid of hair and sculptured with depressed figures. The middle legs are the longest. Two or more of the anterior ventral abdominal segments bear transverse grooves and all of the species, except *Velia cinctipes* Champion, 1898, are provided with a stridular patch on the hind femur and with a row of stridular pegs on the submargin of the abdomen." Polhemus (1976) elevated *Stridulivelia* to generic rank and later Polhemus (1979) established the subgenus *Aenictovelia* for the primarily Mesoamerican species that lack the stridulatory mechanism. The Mesoamerican species were revised by Drake and Menke (1962) and two additional species were added by Polhemus (1979) and Polhemus and Polhemus (1985); thus, the fauna of that region is adequately known. This contribution, therefore, deals only with the

South American species assigned to *Stridulivelia*—*S. (A.) cinctipes* (Champion); *S. (S.) alia* (Drake); *S. (S.) anta* Polhemus & Spangler, new species; *S. (S.) astralis* (Drake & Harris); *S. (S.) ayacucho* Polhemus & Spangler, new species; *S. (S.) quadrispinosa* (Hungerford); *S. (S.) raspa* (Hungerford); *S. (S.) stridulata* (Hungerford); *S. (S.) strigosa* (Hungerford); *S. (S.) tersa* (Drake & Harris); *S. (S.) transversa* (Hungerford). Of the five species in the subgenus *Aenictovelia*, only *Stridulivelia (A.) cinctipes* occurs in northern South America and Mesoamerica and is included in this study.

Both authors have made substantial collections of these insects in South America and we believe the taxonomy, habitat, and distribution of the South American members of *Stridulivelia* (*Stridulivelia*) are now reasonably well understood. This information and the synonymy are given for each species and a key to the species of *Stridulivelia* (*Stridulivelia*) is provided.

Paratypes of the new species are depos-

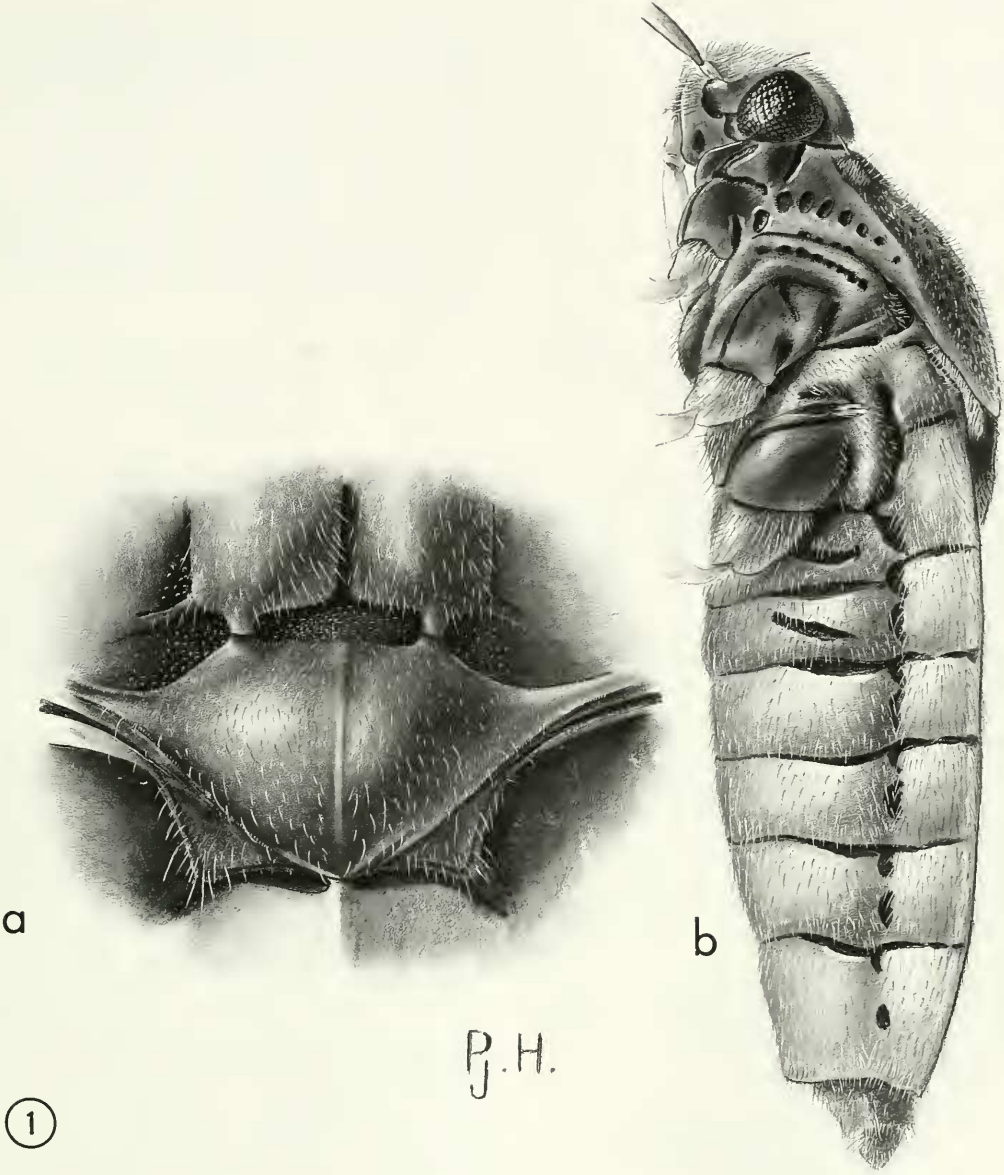


Fig. 1. *Stridulivelia (Aenictovelina) epeixis* (Drake & Menke): a, metasternum and scent gland channels; b, body, lateral view (from Drake and Menke 1962)

ited in the U.S. National Museum of Natural History, Smithsonian Institution, Washington (NMNH) and, as material permits, paratypes will be deposited in the American Museum of Natural History, New York (AMNH) and the J. T. Polhemus Collection (JTPC).

Genus *Stridulivelia* Hungerford

Stridulivelia Hungerford, 1929: 55 (as subgenus of *Velia* Latreille, 1804).
Stridulivelia; Polhemus, 1976: 509 (raised to generic rank).
Aenictovelina Polhemus, 1979: 46 (as subgenus of *Stridulivelia*).

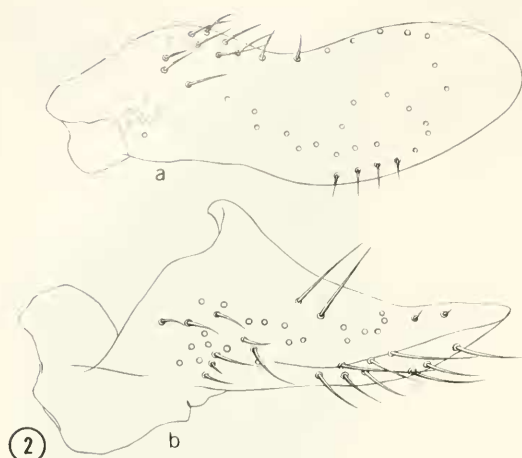


Fig. 2. *Stridulivelia* species, left parameres: a, *S. (Stridulivelia) tersa* (Drake & Harris); b, *S. (Aenictovelina) cinctipes* (Champion). (From Drake and Menke 1962)

Discussion: The genus *Stridulivelia* is restricted to the New World. Its Old World sister group is *Tetraripis*, a genus Andersen (1982) placed in the subfamily Rhagoveliinae on account of a swimming plume resembling that of *Rhagovelia*; however, *Tetraripis* has been transferred by D. A. Polhemus (in press) to the Veliinae by reason of the morphology of the scent gland channels (i.e. angled anteriorly in *Stridulivelia*; Fig. 1a), fore tibial grasping comb in females, and swimming plumes of a different nature than in *Rhagovelia*, representing parallelism in these pretarsal structures.

Stridulivelia Hungerford

KEY TO SUBGENERA

Stridulatory apparatus present in both sexes, consisting of rastrate patch on hind femur and pegs or ridges on connexival margin. Claws slender, downcurving arolia slender. *Stridulivelia*
Stridulatory apparatus absent in both sexes. Claws blade-like, downcurving arolia blade-like *Aenictovelina*

Discussion: The subgenus *Aenictovelina* is primarily Mesoamerican; however, *S. (A.) cinctipes* (Champion) occurs widely in

northern South America. This species and all others of the subgenus are easily distinguished from those of the subgenus *Stridulivelia* by the lack of stridulatory structures (Fig. 1b) and the complex (Fig. 2b) rather than simple (Fig. 2a) parameres. In the taxonomic treatment below, a key is given only for species of the subgenus *Stridulivelia*, which is restricted to South America including Trinidad.

Stridulivelia (Aenictovelina) cinctipes (Champion) Figs. 2b, 3

Velia cinctipes Champion, 1898: 143, pl. 9, fig. 9. (Type from Santarem, Brazil; in BMNH.)

Velia (Stridulivelia) cinctipes; Hungerford, 1929: 55.

Stridulivelia cinctipes; Polhemus, 1976: 509.

Stridulivelia (Aenictovelina) cinctipes; Polhemus, 1979: 46.

Material examined.—COLOMBIA: Antioquia: 4 ♂ micr., 4 ♀ micr., trib to Rio Claro, W of Doradal, CL 2406, 21.VII.1989, J. T. & D. A. Polhemus (JTPC); 1 ♂ micr., 1 ♂ macr., 2 ♀ macr., Quebrada Cristalina, 18 km W of Doradal on Hwy. 60, 350 m, water temp. 22.5°C, CL 2407, 22.VII.1989, J. T. & D. A. Polhemus (JTPC). GUYANA: Mazaruni-Potaro Dist.: 1 ♀ micr., Takatu Mtns., 6°15'N, 59°5'W, 3-10.XII.1983, P. Spangler, R. Faitoute (NMNH). VENEZUELA: Amazonas: 3 ♀ micr., 42 km S. Puerto Ayacucho, Tobogan, CL 2371, 19.I.1989, J. T. Polhemus (JTPC); 3 ♂ micr., 5 ♀ micr., 42 km S. Puerto Ayacucho, small trib to Caño Coromoto, at Tobogan, CL 2388, 26.I.1989, J. T. Polhemus (JTPC); 1 ♂ micr., tiny stream, trib to Rio Gavilan, nr. bridge, CL 2379, 23.I.1989, J. T. Polhemus (JTPC). Dist. Federal: 2 ♂ micr., 1 ♀ micr., Los Caracas, 19.I.1985, P. Spangler, R. Faitoute, W. Steiner, A. Conover (NMNH).

Known distribution (Fig. 3).—Brazil, Colombia, Costa Rica, Guatemala, Guyana,



Fig. 3. *Stridulivelia (Aenictovelina) cinctipes* (Champion), known South American distribution.

Mexico, Panama, Venezuela. Only South American localities are plotted.

Discussion.—This predominantly micropterous species is easily distinguished from all other South American species of the genus by the lack of an evident stridulatory mechanism and the usual presence in males of a long stout spine on the hind trochanter. The length of this spine on the hind trochanter is extremely variable, essentially lacking in some specimens and extremely long in others. *Stridulivelia cinctipes* is common throughout Panama and Costa Rica, where we have collected many specimens; it was reported from Guatemala and Mexico by Drake and Menke (1962), but we have not seen specimens from Mexico.

Stridulivelia (Stridulivelia) Hungerford

KEY TO SPECIES

- 1. First five (visible) ventral abdominal segments with transverse glabrous grooves. (Male also has small groove on segment VI) *transversa* (Hungerford)
First four or fewer ventral abdominal segments with transverse glabrous grooves 2
- 2. First four ventral abdominal segments with transverse glabrous grooves (female may have just a spot on segment IV; male has small groove on segment V, Fig. 18b) .. *tersa* (Drake & Harris)
First three or fewer ventral abdominal segments with transverse glabrous grooves 3
- 3. Pronotal humeral angles spinose (Fig. 4a) ... *alia* (Drake)
Pronotal humeral angles not spinose (Figs. 15a, 18a) 4

4. First two ventral abdominal segments with transverse glabrous grooves 5

First three ventral abdominal segments with transverse glabrous grooves 6

5. Length of second antennal segment subequal to width of head across eyes (male) or at most 1.13 times greater (female). Male without a digitate process ventrally on first genital segment. Female without spine-like processes on posterior margin of abdominal tergite VII
..... *ayacucho*, n. sp

Length of second antennal segment clearly greater than width of head across eyes; 1.22 (female) to 1.38 (male) times greater. Male with a digitate process ventrally on first genital segment. Female with two posteriorly directed spine-like processes on posterior margin of abdominal tergite VII *stridulata* (Hungerford)

6. Length of first antennal segment at least 1.5 times width of head across eyes. Body and legs long, slender *strigosa* (Hungerford)

Length of first antennal segment no more than 1.2 times width of head width across eyes. Body stout, legs stout, hind femur incrassate 7

7. Length of first antennal segment about 1.2 times width of head across eyes. Males with pair of prominent projections ventrally on last abdominal segment. Stridulatory patch on hind femur with about 26–32 sharp pegs not organized in rows *anta*, n. sp.

Length of first antennal segment equal to or less than width of head across eyes. Males with or without pair of prominent projections ventrally on last abdominal segment. Stridulatory patch on hind femur may or may not be organized in rows 8

8. Length of first antennal segment about 0.8 width of head across eyes. Males without pair of prominent projections ventrally on last abdominal segment. Female genital segment, in dorsal view, sharply triangular with length equal to basal width. Stridulatory patch on hind femur organized in about 17 rows of tiny spinulae *astralis* (Drake & Harris)

Length of first antennal segment about equal to width of head across eyes. Males with pair of prominent projections ventrally on last abdominal segment. Female genital segment, in dorsal view, rounded or broadly triangular with length clearly less than basal width. Stridulatory patch on hind femur may or may not be organized in rows 9

9. Stridulatory patch on hind femur with about 40 sharp pegs not organized in rows; connexival margin with a row of fine vertical ridges. Male (ventrally) and female (dorsally) with prominent projections posteriorly on seventh abdominal segment .. *quadrispinosa* (Hungerford)
- Stridulatory patch on hind femur organized in about 17 rows of tiny spinulae; connexival margin with a thin row of tiny pegs. Male (ventrally) with prominent projections posteriorly on seventh abdominal segment; female (dorsally) without prominent projections posteriorly on seventh abdominal segment
..... *raspa* (Hungerford)

Stridulivelia (*Stridulivelia*) *alia*
(Drake)
Figs. 4, 5

Velia alia Drake, 1957: 115 (Type from Bartica District, Guyana; in the National Museum of Natural History).

Stridulivelia alia; Polhemus, 1976: 509.

Material examined (all JTPC, unless noted).—BRAZIL: Amazonas: 6 ♂ micr., 2 ♂ macr., 4 ♀ micr., 1 ♂ macr., Reserva Ducke, 25 km NE of Manaus, Igarape de Anta, 60 m, water temp. 24.5°C, 25.VIII.1989, CL 2472, J. T. and D. A. Polhemus; 1 ♂ micr., 8 ♂ macr., 5 ♀ macr., Reserva Ducke, Igarape Barro Branco, nr. headquarters, 50 m, 27.VIII.1989, CL 2475, J. T. and D. A. Polhemus; 6 ♂ micr., 33 ♂ macr., 9 ♀ micr., 39 ♀ macr., forest stream at INPA forest management station, 98 km NW Manaus, 90 m, water temp. 25°C, 29 Aug. 1989, CL 2477, J. T. & D. A. Polhemus; 7 ♂ macr., 15 ♀ macr., stream near viewing tower, 90 km NW Manaus, 90 m, 29 Aug. 1989, CL 2478, J. T. & D. A. Polhemus; 29 ♂ micr., 26 ♀ micr., stream nr. Egler Reserve, 30.VIII.1989, CL 2479, J. T. and D. A. Polhemus. Para: 5 ♂ macr., 3 ♀ macr., Rio Xingu, camp, 52°22'W, 3°39'S, ca. 60 km S Altamira, 3.X.1986, P. Spangler, O. Flint (NMNH). GUYANA: 6 ♂ micr., 1 ♀ micro, 40 km S Georgetown, 4°29.9'N, 58°13.1'W, 13.IV.1994, P. J. Spangler, colln #27 (NMNH); 1 ♂ micro, 1 ♀ micro, 1 ♀ macr., Dubulay Ranch, 5°39.8'N 57°53.4'W, Warniabo River, 10.IV.1994, P. J. Spangler & R. Parris, colln #24 (NMNH). SURINAME: 1 ♂ macr., 1 ♀ macr., Zanderijsavanne, 4.IX.1969, SN 117B, N. Nieser; 1 ♀ micr., Coesewijn Project, 24.III.1970, SN 371, N. Nieser; 1 ♂ micr., 1 ♀ micr., Coesewijn Pro-

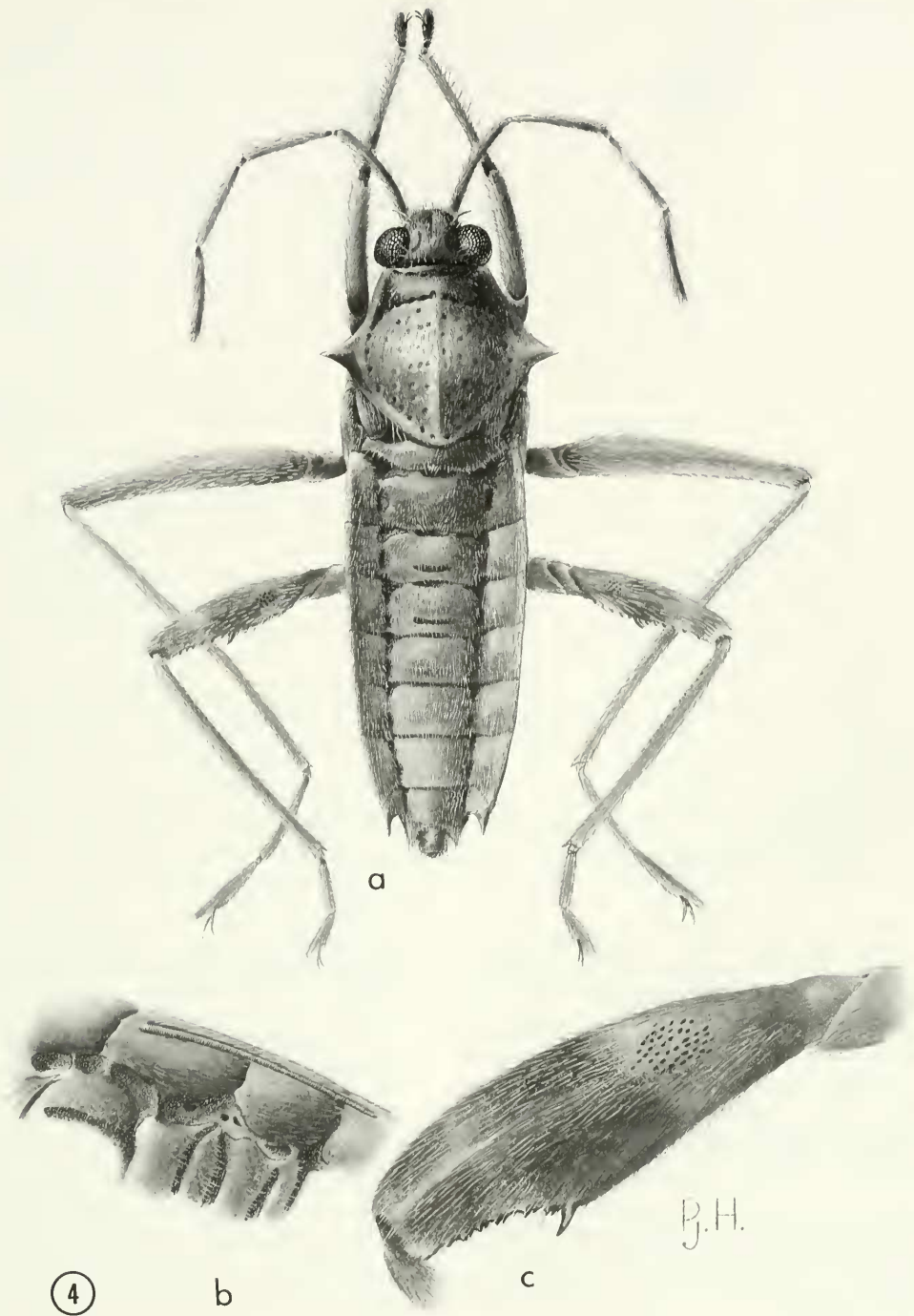


Fig. 4. *Stridulivelia (Stridulivelia) alia* (Drake): a, dorsal habitus, micropterous female; b, connexiva, lateral view, showing stridular file of fine vertical ridges; c, hind femur, showing stridular denticles.

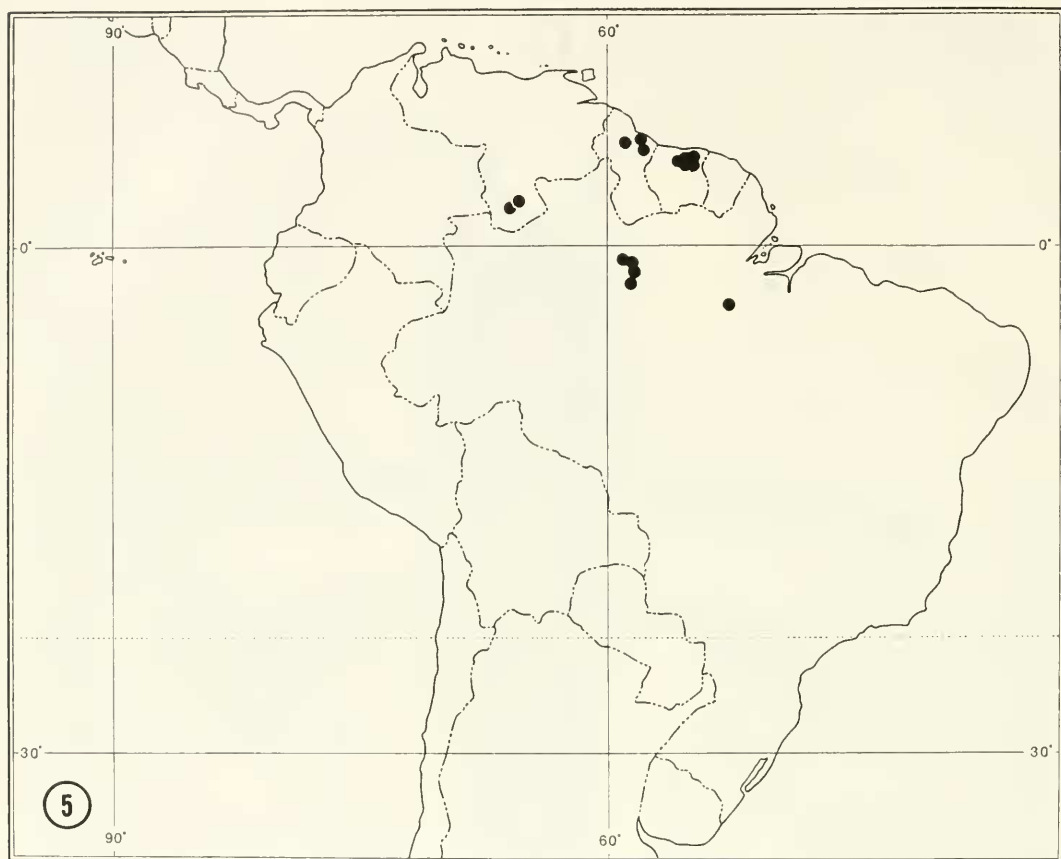


Fig. 5. *Stridulivelia (Stridulivelia) alia* (Drake), known distribution.

ject, 3.III.1970, SN 368, N. Nieser; 1 ♀ macr., 1st streamlet, Hanover Rd., 4.VIII.1969, SN 061, N. Nieser; 1 ♂ micr., Troelikkreek, 18.XI.1969, SN 237, N. Nieser. VENEZUELA: Amazonas: 9 ♂ micr., 9 ♀ micr., small clear stream with sandy bottom, 0.5 km N of Alto Mavaca Base Camp, 2°1'30"N, 65°7'0"W, 228 m, water temp. 22°C, CL 8006, 4.II.1989, D. A. Polhemus; 2 ♂ micr., 1 ♀ micr., small shallow forest stream, tributary to upper Rio Siapa, 1°43'N, 64°30'W, 635 m, water temp. 21.5°C, CL 8011, 8.II.1989, D. A. Polhemus.

Known distribution (Fig. 5).—Brazil, Guyana, Suriname, Venezuela.

Discussion.—*Stridulivelia alia* (Drake) is the most easily distinguished *Stridulivelia*

species because of the unique spines on the humeral angles of both sexes.

***Stridulivelia (Stridulivelia) anta*
Polhemus and Spangler, NEW SPECIES**
Figs. 6–8

Diagnosis.—*Stridulivelia anta*, new species, is most closely related to *S. quadrispinosa* (Hungerford 1929) and *S. alia* Drake. It differs from *S. quadrispinosa* by the smaller size, shorter antennae, fewer stridulatory pegs on the hind femur, and differently formed abdominal terminalia in both males and females. *Stridulivelia anta* is very similar to *S. alia* (Fig. 4) in body size, shape, coloration and stridulatory mechanism; however, *S. anta* is distinguished by the ab-

sence of large spines on the humeral angles, longer glabrous groove on male abdominal sternite IV, less tumid male genital segments, and male proctiger with much shorter and blunt lateral protuberances (Fig. 7). The female of *S. anta* is without spines protruding posteriorly from the first genital segment.

Description.—*Micropterosus male*: Length, mean = 4.09 mm (N = 10, min. 3.77, max. 4.50). Width, mean = 1.07 mm (N = 10, min. 1.00, max. 1.17).

Ground color orange brown, venter somewhat lighter. Pronotum anteriorly lighter, anterolaterally with prominent triangular silvery spots. Head light orange brown; tips of antennal tubercles, bucculae, anteclypeus yellowish; rostrum yellowish brown, distal segment black. Legs and antennae yellow to light brown, lighter ventrally; antennal segment 4 broadly lighter medially.

Head short, almost vertical anteriorly; bucculae prominent, short; rostral cavity closed behind; collar not prominent, set off by a few weak pits; length 0.39; width of eye/interocular space, 0.22/0.28. Pronotum long, humeri not prominent; weakly carinate on midline, carina evanescent anteriorly and posteriorly; with shallow pits, depressed part of each pit with several glabrous light reflecting facets; disc raised; posterior margin rounded at apex; length : width, 1.00 : 1.05. Micropterosus wing pads with silvery setae, reaching onto base of abdominal tergite I.

Dorsum clothed with short semi-erect pubescence and scattered longer setae. Abdominal tergites I, III–VI subequal in length (0.22–0.28), III, VII longer (0.33); connexival margins of II, III, and basal part of IV with a stridular file of fine vertical ridges (similar to those of *S. alia*, Fig. 4b); distal connexival spines acuminate, extending to distal part of first genital segment. Abdominal sternite II (first visible) medially carinate; VII modified, with stout tubercles posteroventrally; sternites II–IV with long,

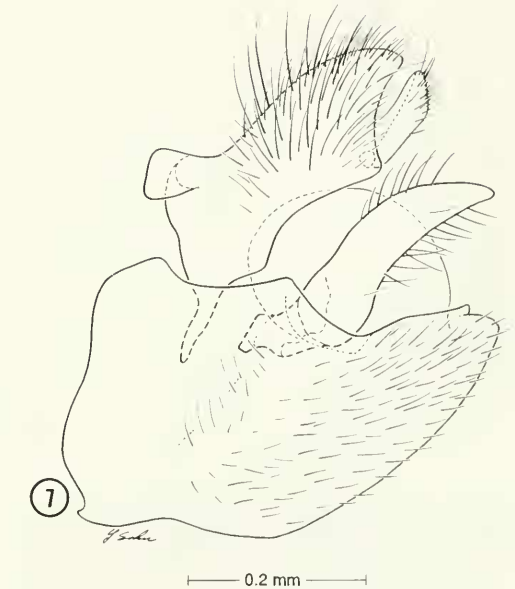
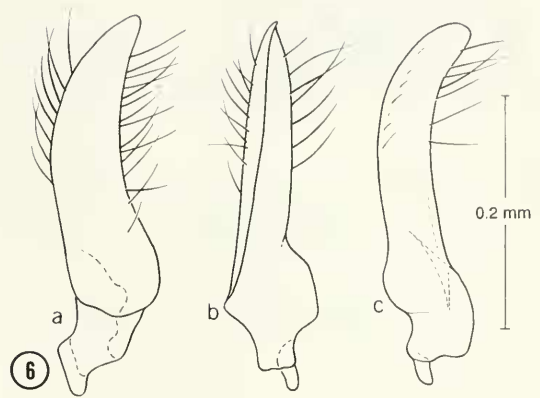


Fig. 6. *Stridulivelia (Stridulivelia) anta* Polhemus & Spangler, n. sp., male paramere: a, lateral view; b, anterior view; c, posterolateral view.

Fig. 7. *Stridulivelia (Stridulivelia) anta* Polhemus & Spangler, n. sp., male genital capsule, lateral view.

glabrous, transverse striae laterally, striae shorter on IV. Legs and antennae thickly clothed with short to moderate length setae; with scattered longer setae ventrally on all femora and tibiae. Posterior trochanters unarmed. Posterior femur tumid, denticulate ventrally, basally with a few scattered denticles increasing in length and frequency dis-



Fig. 8. *Stridulivelia (Stridulivelia) anta* Polhemus & Spangler, n. sp., known distribution.

tally, also with a stout tooth at distal $\frac{2}{3}$ followed by a distal row of small denticles; stridulatory patch small, dorsal, at basal $\frac{1}{4}$, consisting of 26–32 small but stout, black denticles not organized into rows (similar to those of *S. alia*, Fig. 4c). Posterior tibia ventrally with numerous denticles over entire length, not organized into rows; with a very large stout apical spur.

Antennal formula I:II:III:IV; 0.80:0.56:0.56:0.56. Claws long, slender, preapical; dorsal and ventral arolia slender, prominent. Measurements of legs as follows: Femur, tibia, tarsal-1, tarsal-2, tarsal-3 of male fore-leg, 0.97, 0.97, 0.06, 0.05, 0.22; middle-leg, 1.55, 1.66, 0.11, 0.61, 0.42; hind-leg, 1.56, 1.89, 0.06, 0.23, 0.39.

Male genital capsule as shown in Fig. 7.

Proctiger sculptured, with blunt lateral projections (Fig. 7). Paramere long, slender (Fig. 6).

Macropterous male: Length, mean = 4.42 mm ($N = 3$, min. 4.33, max. 4.50). Width, mean = 1.44 mm ($N = 3$, min. 1.44, max. 1.44). Similar in most respects to microppterous male, except pronotum longer and wider, broadly V-shaped posteriorly. Hemelytra chocolate brown, reaching to tip of abdomen; each with two ($1 + 1$) spots of silvery setae, one basally, the other along costal margin at basal $\frac{1}{3}$; distally with single median, light colored, V-shaped mark opening posteriorly, sometimes followed by light streak; basal half with scattered patches of short golden setae, absent medially and distally.

Micropterous female: Length, mean = 4.12 mm (N = 10, min. 4.00, max. 4.27). Width, mean = 1.14 mm (N = 10, min. 1.11, max. 1.17). Color and most structures as in male, except slightly broader. First genital segment truncate, with slight lateral posteriorly directed projections.

Macropterous female: Length, mean = 4.38 mm (N = 4, min. 4.22, max. 4.61). Width, mean = 1.44 mm (N = 4, min. 1.39, max. 1.50). Except for sex, similar to macropterous male.

Ecological notes.—At the type locality, *S. anta* was taken along with 5 other species of *Stridulivelia*—*S. alia* (Drake), *S. tersa* (Drake and Harris), *S. stridulata* (Hungerford), *S. strigosa* (Hungerford), and *S. transversa* (Hungerford); thus 6 of the 10 known species of this genus were collected at a single site. The type locality is a moderately sized, clear, headwater stream flanked with small springs and pools in the original rain forest of Reserva Ducke, a biotope located in low sandy hills.

Etymology.—The name *anta*, a noun in apposition, refers to the type locality, Igarape da Anta, in Reserva Ducke, Amazonas, Brazil.

Material examined.—Holotype, microppterous male: BRAZIL: Amazonas, Reserva Ducke, 25 km NE Manaus, Igarape da Anta, 60 m, water temp. 24.5°C., 25 Aug. 1989, CL 2472, J.T. & D.A. Polhemus (INPA).

Paratypes: BRAZIL: Amazonas: 9 ♂ micr., 11 ♀ micr., same data as holotype (JTPC, AMNH, NMNH); 8 ♂ micr., 9 ♀ micr., Reserva Ducke, 25 km NE Manaus, Igarape Barro Branco, 50 m, water temp. 23.5°C., 27 Aug. 1989, CL 2475, J. T. & D. A. Polhemus (JTPC); 3 ♂ macr., 4 ♀ macr., stream near viewing tower, 90 km NW Manaus, 90 m, 29 Aug. 1989, CL 2478, J. T. & D. A. Polhemus (JTPC); 2 ♂ macr., rainforest stream at INPA Forest Mgmt. Sta., 98 km NW Manaus, 90 m, 29 Aug. 1989, CL 2477, J. T. & D. A. Polhemus (JTPC). VENEZUELA: Amazonas: 2 ♂ micr., Cerro de la Neblina, white water str., 1 km S. Base-

camp, 0°50'N, 66°10'W, 140 m, 8.II.1985, W. E. Steiner, R. Holling (NMNH).

Known distribution (Fig. 8).—Brazil, Venezuela.

Stridulivelia (Stridulivelia) astralis
(Drake & Harris)

Fig. 9

Velia astralis Drake & Harris, 1938: 200 (Type from Matto Grosso, Brazil; in Museo de La Plata).

Stridulivelia astralis; Polhemus, 1976: 509.

Material examined (all JTPC, unless noted).—BRAZIL: Goias: 1 ♂ micr., 1 ♀ micr., 2 ♂ macr., 1 ♀ macr., 48 km S. Peixe, 1.VI.1956, F. Truxal. Matto Grosso: 1 ♂ micr., 1 ♀ micr., Capita Vasconcelos, on Rio Tuatuari, Up. Xingu Basin, 31.VII.1957, B. Malkin. PARAGUAY: Cordillera: 2 ♀ macr., Dist. Caacupe, Caabañas, 9.XII.1980, R. D. Cave (NMNH); 1 ♀ micr., Depto. Cordillera, Piribebuy, Rio Piribebuy, 3.V.1985, T. Bonace (NMNH). Central: 1 ♀ macr., Asuncion, 9.XI.1974, J. Sedlacek; 1 ♀ macr., Horqueta, 17.XII.1974, Alperio Schulze.

Known distribution (Fig. 9).—Brazil, Paraguay.

Discussion.—*S. astralis* and *S. raspa* are small, stout-bodied, closely related species with a small, rastrate stridulatory patch on the hind femur. They may be distinguished by the characters given in the key.

Stridulivelia (Stridulivelia) ayacucho
Polhemus and Spangler, NEW SPECIES
Figs. 10–12

Diagnosis.—*Stridulivelia ayacucho*, new species, most closely resembles *S. quadrispinosa* (Hungerford) in size, general habitus, female abdominal terminalia, and most other features. However, the male of *S. ayacucho* lacks the paired protuberances found on abdominal sternite VII of *S. quadrispinosa* and the stridulatory patch on the hind femur is a rastrate area of parallel sclero-



Fig. 9. *Stridulivelia (Stridulivelia) astralis* (Drake & Harris), known distribution.

tized ridges unlike the patch of black denticles found on *S. quadrispinosa*.

Stridulivelia ayacucho is perhaps most closely related to *S. stridulata* (Hungerford) (Fig. 15b, c), as the stridulatory mechanisms are the same, as well as most other features. In *S. stridulata*, however, the abdomen is more strongly narrowed in both sexes (Fig. 15a); the males have longer upturned connexival spines, spatulate parameres, and a strong digitate process on the first genital segment (Hungerford, 1929, Figs. 3, 8), and the females have two long processes on abdominal tergite VIII (Fig. 15a).

Description.—*Micropterous male*: Length, mean = 4.73 mm (N = 10, min. 4.38, max. 4.99). Width (across base of abdomen), mean = 1.32 mm (N = 10, min. 1.28, max. 1.39).

Ground color brown. Abdominal venter yellowish on each side of midline and along connexival margins. Pronotum anteriorly slightly lighter, anterolaterally without silvery spots; connexival margins yellowish. Head light brown; antennal tubercles lighter; rostrum yellowish brown, distal segment black. Legs and antennae yellow to light brown, lighter ventrally. Posterior femur with broad dark annulus just beyond middle and another distally. Antennal segment 4 light on distal $\frac{1}{4}$.

Head short, almost vertical anteriorly; bucculae prominent, short, rostral cavity closed behind; collar not prominent, set off by a few weak pits plus elongate transverse pit behind each eye; length 0.47; width of eye/interocular space, 0.28/0.28. Pronotum

long, humeri not raised; weakly carinate on midline, carina evanescent posteriorly; with shallow pits, depressed part of each with several glabrous light reflecting facets; disc raised; posterior margin rounded at apex, set off by row of pits; length : width, 1.22: 1.17. Micropterous wing pads with silvery setae, reaching onto base of abdominal tergite I.

Dorsum clothed with short, semi-erect pubescence and scattered, dark, erect, long setae. Abdominal tergites I–VI subequal in length (0.28–0.33), VII longer (0.39); connexival margins II–IV with stridular file of about 30 black, knob-like denticles (similar to that of *S. stridulata*, Fig. 15b); distal connexival spines long, acuminate, extending to middle of genital segments. Abdominal sternite II (first visible) medially carinate; VII modified, tumescent, tumescence abruptly terminating posteriorly; sternites II–III with long, glabrous, transverse striae laterally, located about midway between intersegmental sutures. Legs and antennae thickly clothed with short to moderately long setae; with scattered longer setae ventrally on all femora and tibiae. Posterior trochanters with 8–10 tiny black denticles. Posterior femur tumid, denticulate ventrally; with 2 ragged parallel rows of small denticles plus a few more distally, all subequal in size, except stout tooth at distal $\frac{2}{3}$ on anterior row; dorsally near base with long, broad stridulatory patch consisting of about 50 parallel sclerotized ridges; each ridge interrupted 7 to 20 times, ridges very thin and closely packed anteriorly, progressively coarser posteriorly, extending onto posterior face of femur (similar to that of *S. stridulata*, Fig. 15c). Posterior tibia ventrally with numerous denticles over entire length, mostly organized into 2 rows; with a stout apical spur.

Antennal formula I:II:III:IV; 1.10:0.89:0.69:0.61.

Claws long, slender, preapical; dorsal and ventral arolia slender, prominent. Measurements of legs as follows: Femur, tibia, tar-

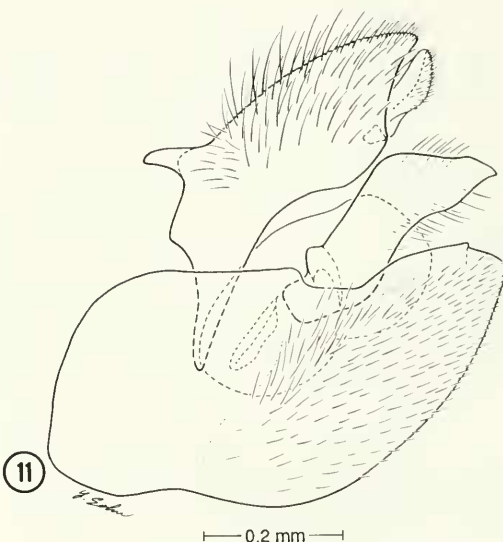
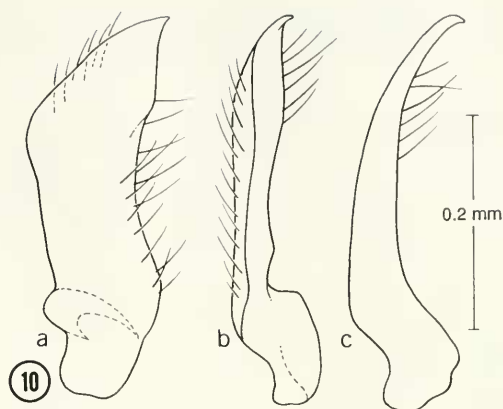


Fig. 10. *Stridulivelia (Stridulivelia) ayacucho* Polhemus & Spangler, n. sp., male paramere: a, lateral view; b, anterior view; c, posterolateral view.

Fig. 11. *Stridulivelia (Stridulivelia) ayacucho* Polhemus & Spangler, n. sp., male genital capsule, lateral view.

sal-1, tarsal-2, tarsal-3 of male fore-leg, 1.22, 1.22, 0.06, 0.05, 0.22; middle-leg, 1.89, 2.05, 0.06, 0.61, 0.50; hind-leg, 1.72, 1.83, 0.06, 0.39, 0.33.

Male genital capsule as shown in Fig. 11. Proctiger sculptured, with acuminate lateral



Fig. 12. *Stridulivelia (Stridulivelia) ayacucho* Polhemus & Spangler, n. sp., known distribution.

projections (Fig. 11). Paramere long, broad, blade-like (Fig. 10).

Macropterous male: Unknown.

Micropterous female: Length, mean = 4.93 mm (N = 10, min. 4.77, max. 5.16). Width (across base of abdomen), mean = 1.45 mm (N = 10, min. 1.39, max. 1.50). Color and most structures as in male, except slightly broader. First genital segment truncate; with prominent, acuminate, lateral, posteriorly directed projections.

Macropterous female: Length, mean = 5.30 mm (N = 2, min. 5.27, max. 5.33). Width (across humeral angles), mean = 1.78 mm (N = 2, min. 1.78, max. 1.78). Similar in most respects to micropterous female, ex-

cept pronotum longer and wider, broadly V-shaped posteriorly, caudally with short (0.14) posteriorly projecting digitate protuberance. Hemelytra chocolate brown, reaching to tip of abdomen; each with two (1 + 1) spots of silvery setae, one large triangular spot basally, another small spot along costal margin at basal $\frac{1}{3}$; distally with single median white almost circular mark, with small V-shaped notch posteriorly; with scattered patches of short golden setae basally, patches absent medially and distally.

Habitat data.—The type locality is a flowing stream in original forest, with alternating long pools and gravel bottomed riffles. The insects were taken from a low, partially

flooded cavity deeply hollowed out under a steep bank laced with tree roots.

Etymology.—The name *ayacucho*, a noun in apposition, refers to the city of Puerto Ayacucho, which is near the type locality.

Holotype, apterous male: VENEZUELA: Amazonas: 21 km S. Tobogan Jct. (53 km S of Pto. Ayacucho), "Missionary Stream," small river with alternating riffles and pools, CL 2375, 22.I.1989, J. T. Polhemus (NMNH).

Paratypes: BRAZIL: Para: 1 ♀ micr., Rio Xingu, camp, 52°22'W, 3°39'S, ca. 60 km S Altamira, 3.X.1986, P. Spangler, O. Flint (NMNH). GUYANA: 1 ♂ micr., Ishezr.-Tun., Lat 2°N, 16 km E of Rupununi Riv., 1937, Terry-Hulden Exp. (JTPC). PARAGUAY: Paraguari: 3 ♂ micr., 4 ♀ micr., Cerro Acahay, Arroyo, 31.V.1985, T. Bonace (NMNH). PERU: Madre Dios: 1 ♂ micr., 1 ♀ micr., Parque Manu, Pakitza, 12°07'S, 70°58'W, 250 m, side pools of stream, colln. 39, 13.IX.1989, R. A. Faitoute (NMNH); 1 ♀ micr., Parque Manu, same, but stream, colln. 44, 17-18.IX.1989, R. A. Faitoute (NMNH). VENEZUELA: Amazonas: 5 ♂ micr., 10 ♀ micr., same data as holotype (JTPC); 1 ♀ micr., 6 km S. Tobogan Jct. (38 km S of Pto. Ayacucho), brook, CL 2374, 22.I.1989, J. T. Polhemus (JTPC); 4 ♂ micr., 10 ♀ micr., tiny stream, trib to Rio Gavilan, nr. bridge, CL 2379, 23.I.1989, J. T. Polhemus (JTPC); 2 ♀ micr., 16 km S Pto. Ayacucho, Puente Pulda, CL 2387, 26.I.1989, J. T. Polhemus (JTPC); 2 ♂ micr., 4 ♀ micr., small shallow forest stream, trib to upper Rio Siapa, 1°43'N, 64°30'W, 635 m, water temp. 21.5°C, CL 8011, 8.II.1989, D. A. Polhemus (JTPC, NMNH); 23 ♂ micr., 23 ♀ micr., small clear stream with sandy bottom, 0.5 km N of Alto Mavaca Base Camp, 2°1'30"N, 65°7'0"W, 228 m, water temp. 22°C, CL 8006, 4.II.1989, D. A. Polhemus (JTPC, NMNH); 1 ♂ micr., 1 ♀ micr., 39 km S Pto. Ayacucho, brook, 15.XI.1987, P. Spangler, R. A. Faitoute (NMNH).

Known distribution (Fig. 12).—Brazil, Guyana, Paraguay, Peru, Venezuela.

Stridulivelia (*Stridulivelia*)
quadrspinosa (Hungerford)

Fig. 13

Velia (*Stridulivelia*) *quadrspinosa* Hungerford, 1929: 52. (Type from Santarem, Brazil; in BMNH.)

Stridulivelia quadrspinosa; Polhemus, 1976: 509.

Material examined.—BOLIVIA: Beni: 2 ♂ micr., 2 ♀ micr., rainforest stream 40 km S of Rurrenabaque, nr. Monte Redondo Sawmill, CL 2511, 12.IX.1989, J. T. & D. A. Polhemus (JTPC). BRAZIL: Amazonas: 1 ♂ micr., Rio Crynyn, Missao, A 88-1, 12.I.1961, E. J. Fittkau (JTPC). Para: 2 ♀ micr., Rio Xingu, camp, 52°22'W, 3°39'S, ca. 60 km S Altamira, 3.X.1986, P. Spangler, O. Flint (NMNH). GUYANA: Lethem (30 km SE), 3°18'N, 59°39'W, Moco Moco River, 3.IV.1994, Paul J. Spangler, 1 ♀ micr. (NMNH). PERU: Loreto: 1 ♂ micr., 2 ♀ micr., stream near Napo Camp, CL 2459, 15.VIII.1989, J. T. & D. A. Polhemus (JTPC); 1 ♂ micr., 1 ♀ micr., small rainforest stream near Explorama Inn, CL 2465, 18.VIII.1989, J. T. & D. A. Polhemus (JTPC). VENEZUELA: Amazonas: 2 ♂ micr., 3 ♀ micr., 21 km S. Tobogan Jct. (53 km S of Pto. Ayacucho), "Missionary Stream," small river with alternating riffles and pools, CL 2375, 22.I.1989, J. T. Polhemus (JTPC); 3 ♂ micr., 3 ♀ micr., small clear stream with sandy bottom, 0.5 km N of Alto Mavaca Base Camp, 2°1'30"N, 65°7'0"W, 228 m, water temp. 22°C, CL 8006, 4.II.1989, D. A. Polhemus (JTPC).

Known distribution (Fig. 13).—Bolivia, Brazil, Guyana, Peru, Venezuela.

Discussion.—This species was described from Brazil. We have specimens from several localities matching the original description and figures given by Hungerford (1929), but the species seems to be uncommon.

In three small series from Loreto Dept., Peru, and Beni Dept., Bolivia, the males have the first genital segment more tumid ventrally and the females lack the strongly



Fig. 13. *Stridulivelia (Stridulivelia) quadrispinosa* (Hungerford), known distribution.

projecting spines on tergite VIII; otherwise these specimens match those from Venezuela and Brazil in every respect. For the present, these are considered as variant populations of *S. quadrispinosa*.

Stridulivelia (Stridulivelia) raspa
(Hungerford)

Fig. 14

Velia (Stridulivelia) raspa Hungerford, 1929: 51. (Type from Manacaparu, Amazonas, Brazil; in SEMC.)

Stridulivelia raspa; Polhemus, 1976: 509.

Material examined (all JTPC).—BRAZIL: Amazonas: 2 ♀ micr., Rio Madeira, Ig. (Igarape) Tres Casas, 10.XI.1941, S67, H. Sioli (JTPC); 2 ♀ micr., Rio Madeira, Ig.

Tres Casas, 12.XI.1941, S73, H. Sioli (JTPC).

Known distribution (Fig. 14).—Brazil.

Discussion.—This species has been found only in the lowlands west and south of Manaus, Amazonas, Brazil, and is one of eight *Stridulivelia* species now known from the vicinity of Manaus.

Stridulivelia (Stridulivelia) stridulata
(Hungerford)

Figs. 15, 16

Velia (Stridulivelia) stridulata Hungerford, 1929: 53. (Type from Guyane, Haut-Carsevenne; in Paris Museum.)

Stridulivelia stridulata; Polhemus, 1976: 509.



Fig. 14. *Stridulivelia (Stridulivelia) raspa* (Hungerford), known distribution.

Material examined (all JTPC unless noted).—BRAZIL: Amazonas: 4 ♂ micr., 4 ♀ micr., Reserva Ducke, 25 km NE of Manaus, Igarape da Anta, 60 m, water temp. 24.5°C, 25.VIII.1989, CL 2472, J. T. and D. A. Polhemus; 9 ♂ micr., 11 ♀ macr., Reserva Ducke, Igarape Barro Branco, nr. headquarters, 50 m, 27.VIII.1989, CL 2475, J. T. and D. A. Polhemus; 4 ♀ micr., forest stream at INPA forest management station, 98 km NW Manaus, 90 m, water temp. 25°C, 29 Aug. 1989, CL 2477, J. T. & D. A. Polhemus; 1 ♂ micr., 1 ♀ micr., Igarape Acará, 4 km SE of Ducke Reserve Hdq., 60 m, water temp. 24.5°C, 26 Aug. 1989, CL 2474, J. T. & D. A. Polhemus; 1 ♀ micr., Rio Cuieiras, Branquinho, 22.VII.1969, A 214-

1, E. J. Fittkau; 1 ♂ micr., 2 ♀ micr., Manaus, Ig. (Igarape) Gigante, 3.VII.1961, A 198-6, E. J. Fittkau (JTPC, ZSMC); 3 ♀ micr., Lago Salgado, Ig. S. Benedito, 15.IV.1948, A 223, H. Sioli (JTPC, ZSMC). SURINAME: 1 ♂ micr., Zanderijsavanne, Carolinakreek, 22.VIII.1969, SN 095, N. Nieser; 3 ♂ micr., 1 ♀ micr., Brokopondo, Kakaterekreek, 3.XI.1969, SN 216, N. Nieser; 1 ♂ micr., Saramacca, road to Saramacca-brug, 12 km W of jct. with rd. to Matta, 26.I.1970, SN 299, N. Nieser.

Known distribution (Fig. 16).—Brazil, French Guiana, Suriname.

Discussion.—This species is known only from the micropterous form (Fig. 15a). It is the largest *Stridulivelia* species known.

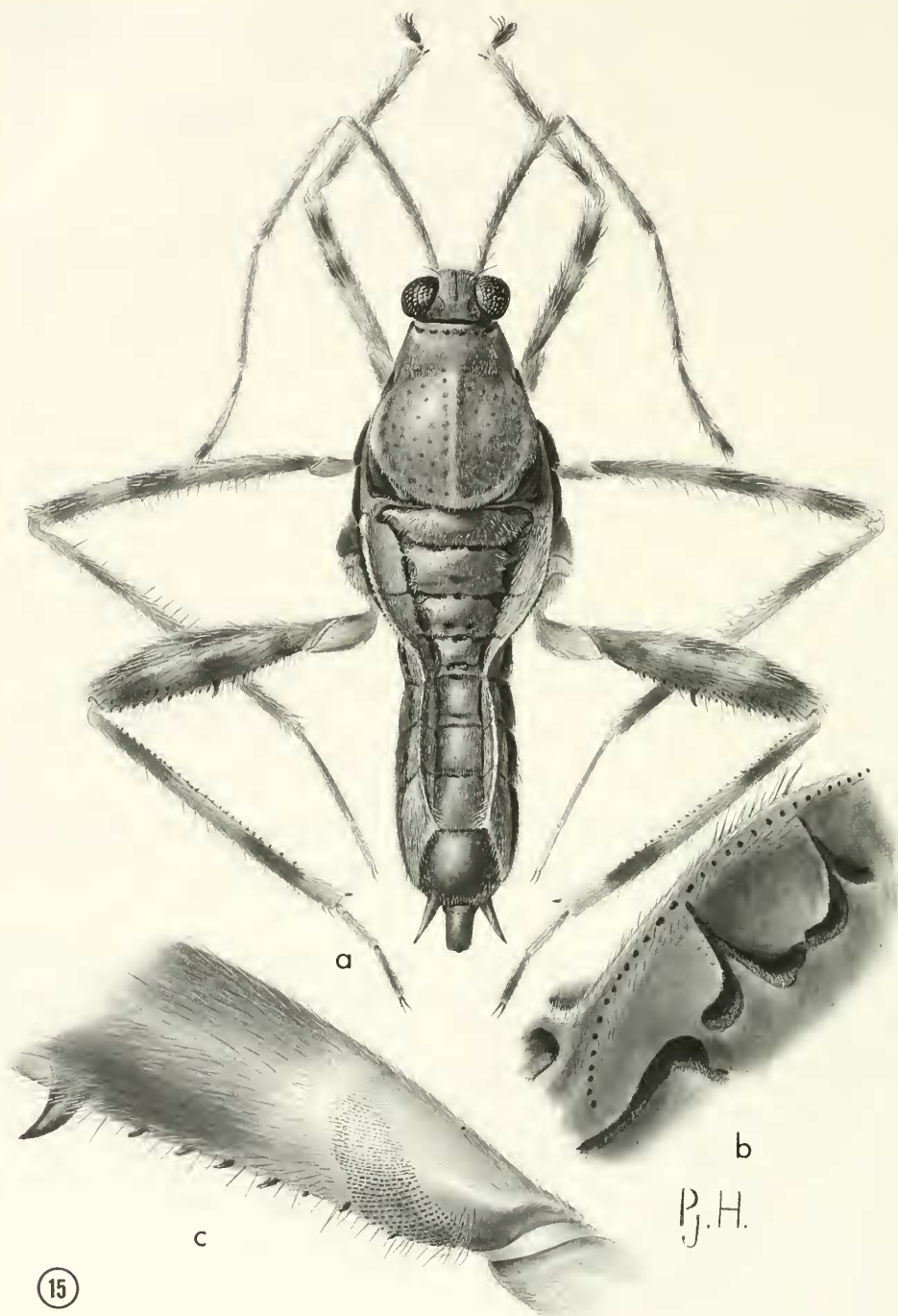


Fig. 15. *Stridulivelia (Stridulivelia) stridulata* (Hungerford): a, dorsal habitus, micropterous female; b, connexiva, lateral view, showing row of stridular denticles; c, hind femur, showing rastrate stridular structure.



Fig. 16. *Stridulivelia (Stridulivelia) stridulata* (Hungerford), known distribution.

Stridulivelia (Stridulivelia) strigosa
(Hungerford)
Fig. 17

Velia (Stridulivelia) strigosa Hungerford,
1929: 50. (Type from Guyane, Haut-Car-
sevenne; in Paris Museum.)
Stridulivelia strigosa; Polhemus, 1976: 509.

Material examined (all JTPC, unless not-
ed).—BRAZIL: Amazonas: 1 ♂ micr., 1 ♀
micr., Reserva Ducke, 25 km NE of Ma-
naus, Igarape da Anta, 60 m, water temp.
24.5°C, 25.VIII.1989, CL 2472, J. T. and
D. A. Polhemus; 10 ♂ micr., 4 ♀ micr., Re-
serva Ducke, 25 km NE Manaus, Igarape
Barro Branco, 50 m, water temp. 23.5°C.,
27 Aug. 1989, CL 2475, J. T. & D. A. Pol-
hemus (JTPC); 1 ♂ macr., 1 ♀ micr., stream

near viewing tower, 90 km NW Manaus, 90
m, 29 Aug. 1989, CL 2478, J. T. & D. A.
Polhemus; 3 ♂ micr., 1 ♀ micr., rainforest
stream at INPA Forest Mgmt. Sta., 98 km
NW Manaus, 90 m, 29 Aug. 1989, CL 2477,
J. T. & D. A. Polhemus; 3 ♂ micr., 2 ♀ micr.,
Reserva Ducke, 25 km NE of Manaus, Igar-
ape Acará, 26.VIII.1989, CL 2474, J. T. and
D. A. Polhemus; 2 ♂ micr., 2 ♀ micr., stream
nr. Egler Reserve, 30.VIII.1989, CL 2479,
J. T. and D. A. Polhemus; 5 ♂ micr., 5 ♀
micr., Rio Negro, Igarape Barro Branco,
30.VII.1962, A 400, E. J. Fittkau (JTPC,
ZSMC). Matto Grosso: 9 ♂ macr., 11 ♀ macr.,
Serra Roncador, 16-17.VIII.1965, A 558,
E. J. Fittkau (JTPC, ZSMC). Para: 1 ♂ macr.,
Quellgebiet des Rio Xingu, Fließgewasser
zwischen Goiana und Cuiaba, 5.IX.1965A

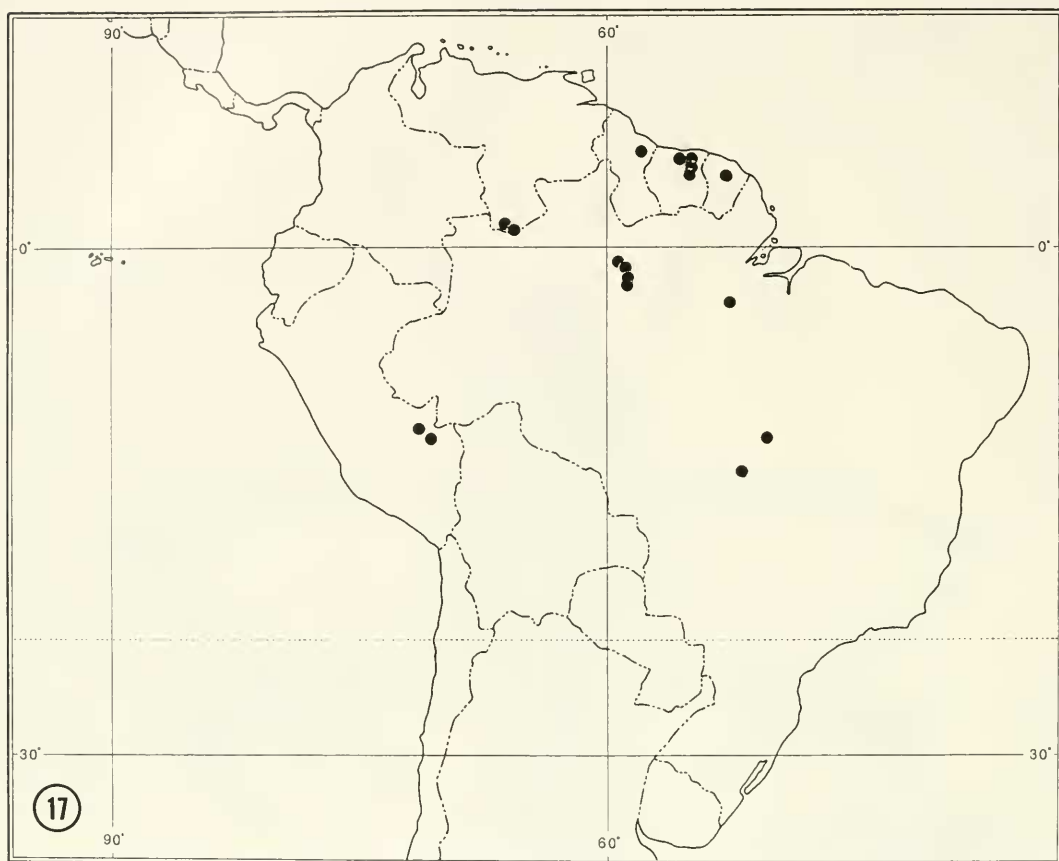


Fig. 17. *Stridulivelia (Stridulivelia) strigosa* (Hungerford), known distribution.

574-2, E. J. Fittkau (ZSMC); 2 ♂ macr., Rio Xingu, camp, 52°22'W, 3°39'S, ca. 60 km S Altamira, 3.X.1986, P. Spangler, O. Flint (NMNH). GUYANA: 15 ♂ micro, 10 ♀ micro, Dubulay Ranch, 5°39.8'N, 57°53.4'W, Warniabo River, 10.IV.1994, P. J. Spangler & R. Parris, colln #24 (NMNH). PERU: Madre Dios: 1 ♀ micr., Parque Manu, Pakitza, 12°07'S, 70°58'W, 250 m, side pools of stream, colln. 42, 16.IX.1989, R. A. Faitoute (NMNH). SURINAME: 1 ♂ micr., 1 ♀ micr., Zanderijsavanne, 1st trib. Colakreek crossing rd. to Matta, SN 116, N. Nieser; 1 ♂ micr., Zanderijsavanne, 28.VIII.1969, SN 099, N. Nieser; 1 ♂ micr., 3 ♀ micr., Zanderijsavanne, Carolinakreek, 22.VII.1969, SN 092, N. Nieser; 7 ♂ micr., 6 ♀ micr., Zanderijsavanne, 1st trib. Colakreek, 8.IX.1969, SN

127, SN 128, N. Nieser; 21 ♂ micr., 23 ♀ micr., 2 ♂ macr., Saramaca, 2nd trib. Troelikreek, 18.XI.1969, N. Nieser; 1 ♂ micr., Sabakoekreek, 29.VII.1965, SN 044, N. Nieser; 2 ♂ micr., 3 ♀ micr., Carolinakreek, 8.IV.1962, P. H. van Doesburg; 1 ♂ micr., Bosgivak, Creek, 29.XII.1950, Geiskes. VENEZUELA: Amazonas: 1 ♀ micr., Cerro de la Neblina, Basecamp, margins Rio Baria, 0°50'N, 66°10'W, 140 m, 20.II.1985, P. J. & P. M. Spangler, R. A. Faitoute, W. E. Steiner (NMNH); 2 ♀ micr., Cerro de la Neblina, same, but 1 km S of Basecamp (NMNH).

Known distribution (Fig. 17).—Brazil, French Guiana, Guyana, Peru, Suriname, Venezuela.

Discussion.—This long, slender species does not resemble any of the other species

of the genus except *S. tersa*, with which it forms a species pair. These species are distinguishable from each other by the complement of striae on the abdominal sternites as given in the key and the short dark region on the hind femur of *S. tersa* (Fig. 18a, c) as opposed to a longer, more diffuse, dark region in *S. strigosa*. They share a similar size and shape, large triangular silvery spots on the pronotum (Fig. 18a), an extensive covering of silvery setae on the base of the hemelytra of macropters, and large rastrate stridular patches on the slender hind femora; the stridular patches are only modestly thickened distally (Fig. 18c). *Stridulivelia strigosa* is usually micropterous.

Stridulivelia (Stridulivelia) tersa

(Drake & Harris)

Figs. 18, 19

Velia tersa Drake & Harris, 1941: 338. (Type from Trinidad, B.W.I.; in the National Museum of Natural History).

Velia nama Drake, 1957: 114. (Type from Quarto Ojos, Rio Piray, Dept. Santa Cruz, Bolivia; in the National Museum of Natural History) (New synonymy).

Velia (Stridulivelia) tersa; Drake & Menke, 1962: 415.

Stridulivelia tersa; Polhemus, 1976: 509.

Material examined (all JTPC, unless noted).—BOLIVIA: Beni: 1 ♂ micr., rainforest stream 40 km S of Rurrenabaque, nr. Monte Redondo Sawmill, CL 2511, 12.IX.1989, J. T. & D. A. Polhemus. La Paz: 3 ♂ micr., 9 ♀ micr., 3 km SE of Sapecho, CL 2515, 12.IX.1989, J. T. & D. A. Polhemus. Santa Cruz: 1 ♀ macr., Ichilo Prov., stream 10 km S Buena Vista, 380 m, 20.IX.1989, CL 2357, J. T. and D. A. Polhemus. BRAZIL: Amazonas: 1 ♀ macr., Reserva Ducke, 25 km NE of Manaus, Igarape da Anta, 60 m, water temp. 24.5°C, 25.VIII.1989, CL 2472, J. T. and D. A. Polhemus; 6 ♂ macr., 5 ♀ macr., Reserva Ducke, Igarape Acará, 26.VIII.1989, CL 2474, J. T. and D. A. Polhemus; 2 ♀ macr., Reserva Ducke, Igarape Barro Branco, nr.

headquarters, 50 m, 27.VIII.1989, CL 2475, J. T. and D. A. Polhemus; 3 ♂ macr., rainforest stream at INPA Forest Mgmt. Sta., 98 km NW Manaus, 90 m, 29 Aug. 1989, CL 2477, J. T. and D. A. Polhemus. MATTO GROSSO: 4 ♂ macr., 8 ♀ macr., Serra Roncador, 16-17.VIII.1965, A 558, E. J. Fittkau; 9 ♂ macr., 9 ♀ macr., Serra Roncador, nr. Acampamento Sarapé, km 125, 17.VIII.1965, A 559, E. J. Fittkau (JTPC, ZSMC). GUYANA: 1 ♂ macr., 1 ♀ macr., Karanambo, 18.IX.1957, R. McConnell. PERU: Loreto: 7 ♂ macr., 5 ♀ macr., stream near Napo Camp, CL 2459, 15.VIII.1989, J. T. & D. A. Polhemus; 7 ♂ macr., 6 ♀ macr., stream near Explorama Lodge, CL 2457, 14.VIII.1989, J. T. & D. A. Polhemus; 3 ♂ macr., 4 ♀ macr., small rainforest stream near Explorama Inn, CL 2465, 18.VIII.1989, J. T. & D. A. Polhemus. SURINAME: 1 ♂ micr., 5 ♂ macr., 4 ♀ macr., Zanderijsavanne, Carolinakreek, 22.VIII.1969, SN 092, N. Nieser; 1 ♀ micr., same but 18.VIII.1969, SN 080, N. Nieser; 1 ♀ macr., Coesewijn Project, Brokopondo, 9 km along Rd. to S. branch, 7.IV.1970, SN 402, N. Nieser. TRINIDAD: 1 ♂ micr., 27.X.1938, C. J. Drake. VENEZUELA: Amazonas: 1 ♂ micr., 2 ♀ macr., 39 km S. Puerto Ayacucho, brook, coll. 4, 15.XI.1987, P. J. Spangler & R. A. Faitoute (NMNH); 30 ♂ micr., 6 ♂ macr., 42 ♀ micr., 4 ♀ macr., 21 km S. Tobogan Jct. (53 km S of Pto. Ayacucho), "Missionary Stream," small river with alternating riffles and pools, CL 2375, 22.I.1989, J. T. Polhemus; 7 ♂ micr., 4 ♀ micr., 6 km S. Tobogan Jct., brook, CL 2374, 22.I.1989, J. T. Polhemus; 2 ♂ micr., 2 ♀ micr., Puente Pulda, 16 km S Pto. Ayacucho, CL 2387, 26.I.1989, J. T. Polhemus; 4 ♂ micr., 2 ♂ macr., 3 ♀ micr., 4 ♀ macr., 30 km S Pto. Ayacucho, Rio Paria Chico, CL 2372, 21.I.1989, J. T. Polhemus; 6 ♂ micr., 7 ♂ macr., 4 ♀ micr., 8 ♀ macr., stream, 0.1 km S of Tobogan-Coromoto Jct., CL 2383, 25.I.1989, J. T. Polhemus; 4 ♂ macr., 5 ♀ macr., 38 km N Pto. Ayacucho, CL 2386, 25.I.1989, J. T. Polhemus; 4 ♂ macr., 1 ♀ macr., small clear stream with sandy bottom, 0.5 km N of Alto

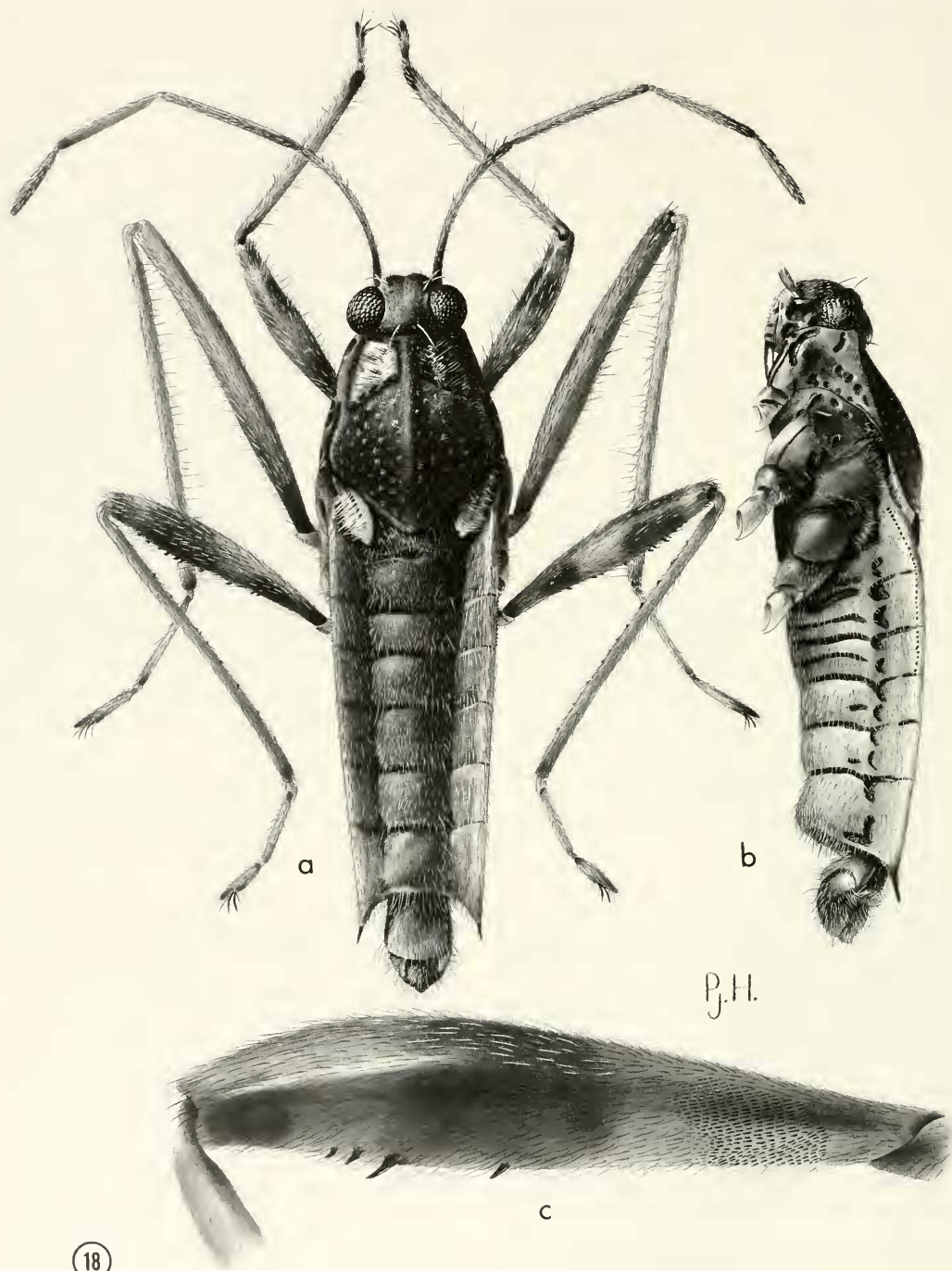


Fig. 18. *Stridulivelia (Stridulivelia) tersa* (Drake & Harris): a, dorsal habitus, micropterous male; b, body, lateral view, showing lateral abdominal glabrous grooves and stridulatory denticles on the connexivum; c, hind femur, showing basal rastrate stridular structure. (From Drake and Menke 1962)

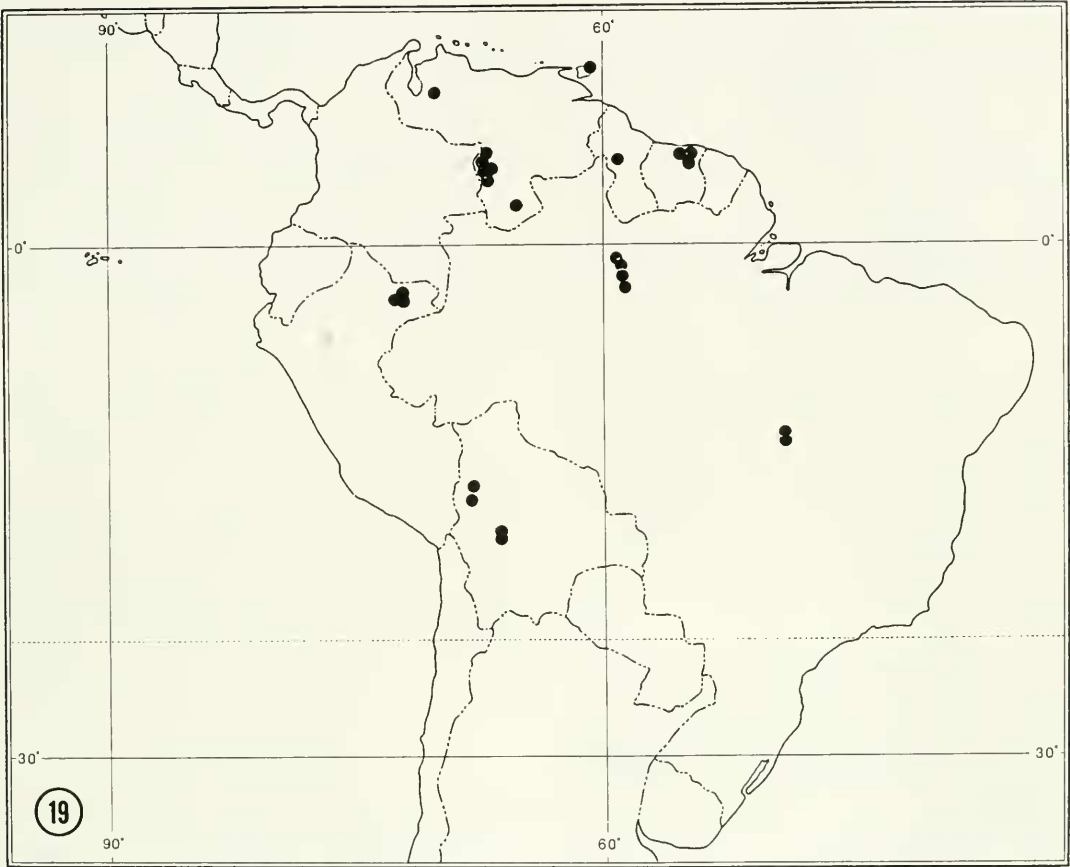


Fig. 19. *Stridulivelia (Stridulivelia) tersa* (Drake & Harris), known distribution.

Mavaca Base Camp, 2°1'30"N, 65°7'0"W, 228 m, water temp. 22°C, CL 8006, 4.II.1989, D. A. Polhemus. Prov. Unknown: 1 ♂ micr., 2 ♀ micr., Barinas, Rio Bocono, 13.IX.1957, B. Malkin.

Known distribution (Fig. 19).—Bolivia, Brazil, Guyana, Peru, Suriname, Trinidad, Venezuela.

Discussion.—The type of *S. tersa* is a micropterous male. This species is quite common in South America and we now have long series including both micropterous and macropterous forms; the macropterous morph is predominant. See comparative notes under *S. strigosa*.

The macropterous type of *S. nama* was compared with a macropterous male of *S.*

tersa by Dr. D. A. Polhemus who found it to be the same in every important respect. Drake (1957) stated in the description of *nama*: "Abdomen beneath with first three abdominal segments deeply transversely grooved on each side," which would be a key character distinguishing this species from *tersa*; however, the type of *nama* has these grooves on the first 5 (visible) abdominal segments, exactly as shown in the splendid figure of *tersa* given by Drake and Menke (1962, plate 1, fig. b; our Fig. 18b), and the stridulatory mechanism also is exactly the same. We recently collected specimens of *nama* from several localities in Bolivia very near the type locality, but when we could not distinguish these from *tersa*, and they



Fig. 20. *Stridulivelia (Stridulivelia) transversa* (Hungerford), known distribution.

matched the description of *nama* except for the abdominal grooves, we reverted to the types to establish the synonymy.

Stridulivelia (Stridulivelia) transversa
(Hungerford)
Fig. 20

Velia (Stridulivelia) transversa Hungerford, 1929: 54. (Type from Guyane, Haut-Car-sevenne; in Paris Museum.)

Stridulivelia transversa; Polhemus, 1976: 509.

Material examined (all JTPC).—BRA-ZIL: Amazonas: 11 ♂ micr., 11 ♀ micr., Reserva Ducke, 25 km NE of Manaus, Igarape da Anta, 60 m, water temp. 24.5°C,

25.VIII.1989, CL 2472, J. T. and D. A. Polhemus; 9 ♂ micr., 9 ♀ micr., Reserva Ducke, Igarape Barro Branco, nr. headquarters, 50 m, 27.VIII.1989, CL 2475, J. T. and D. A. Polhemus; 26 ♂ micr., 1 ♂ macr., 24 ♀ micr., 1 ♀ macr., forest stream at INPA forest management station, 98 km NW Manaus, 90 m, water temp. 25°C, 29 Aug. 1989, CL 2477, J. T. & D. A. Polhemus; 2 ♂ micr., 4 ♂ macr., 4 ♀ micr., 2 ♀ macr., stream near viewing tower, 90 km NW Manaus, 90 m, 29 Aug. 1989, CL 2478, J. T. & D. A. Polhemus; 9 ♂ micr., 7 ♀ micr., stream, nr. Egler Reserve, 30.VIII.1989, CL 2479, J. T. and D. A. Polhemus; 1 ♂ macr., Mont Alegre, Mulaba, 23.IX.1954, S303-6, H. Sioli; 1 ♀ macr., Lago

Salgado, Ig. (Igarape) Agua Dolce, 23.IV.1948, S225, H. Sioli; 1 ♂ micr., Rio Negro, Ig. (Igarape) Barro Branco, 30.VII.1962, A 400, E. J. Fittkau. SURINAME: 1 ♂ micr., 1 ♂ macr., 1 ♀ micr., Zanderijsavanne, 1st trib. of Colakreek crossing rd. to Matta, 19.IX.1969, SN 150, N. Nieser; 2 ♀ macr., 1st trib. of Colakreek, 8.IX.1969, SN 127, SN 128, N. Nieser; 1 ♂ micr., 1 ♀ micr., Coesewijn Project, 3.III.1970, SN 368, N. Nieser; 3 ♂ micr., 1 ♀ micr., 1st streamlet, Hanover Rd., 4.VIII.1969, SN 058, N. Nieser.

Known distribution (Fig. 20).—Brazil, French Guiana, Suriname.

Discussion.—This is the smallest and most delicate of the *Stridulivelia* species, easily distinguishable by its small size, small stridulatory patch on the hind femur, complement of transverse abdominal grooves, and strongly narrowed abdomen of the females.

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